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ABSTRACT

The physical arrangement of reading, storage, and service areas for the microform department of the Joseph Regenstein Library can serve as a case study for the estimation of space requirements for microform storage and retrieval. The library uses mechanical readers at carrel stations, each utilizing 31.5 square feet of floor space. The best methods for storing microforms employ specially constructed metal cabinets or shelves. Direct public access to microfiche collections is impractical, but in small collections it is possible to allow access to film. As collections grow large, it becomes economical to automate retrieval using self-contained or remote controlled equipment. (KB)

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MEETING LIBRARY SPACE NEEDS

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CHICAGO, ILLINOIS

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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ESTIMATING SPACE REQUIREMENTS FOR MICROFORM STORAGE AND RETRIEVAL

Although the principle of micrographics has been known for more than one hundred years, the first widespread application was initiated by banks. This procedure reduced labor costs and made checking accounts available to almost everyone. Micrographics has progressed to the stage where, when combined with computer systems, the entire banking system is now automated.

Many new advances begin in the commercial area and gradually influence other fields. Modular buildings, movable partitions, office landscape and underfloor ducts, to name only a few, started in offices and are now found in most libraries. Microform is one of these advances.

Prior to World War II, book collections doubled in size every 25 years. Today it is much faster and the output of technical reports and monographs also increases at the same rapid rate. The result is a growing pressure for space in libraries. Subsequent speakers will address other facets of this problem.

One result of this pressure was the development of many kinds of micrographics. The principal forms to date have been microfilm on reels, microfiche (sheet microfilm), microcards (opaque paper positives) and microprint (paper opaques which are duplicated in large editions by a photomechanical process). Today only the film and fiche are still made, although libraries with the other types will keep using them as they are probably too expensive to discard.

The use of microfilm to preserve deteriorating material was the typical library user's first encounter with microfilm. For about 20 years the principal use of microform was the storage of newspapers and magazines. One 100' roll of microfilm, which has 20 images per foot, stores nine days of the New York Times or seven days of the Chicago Tribune. The standard microfiche, a 4" x 6" card, contains the images of 60 to 90 standard pages of text. The new ultrafiche can reduce 2,000 pages to one celluloid sheet or store the contents of 250,000 books in drawers the size of those now containing the card catalog.

My presentation is estimating the space requirements for microform storage and retrieval. When Stanley McElderry, Director of the University of Chicago Libraries, asked me to speak at this conference, I had no idea that the state of the art was still in such confusion. To help better understand what the state of the art is, I thought it would be interesting to take an actual case and use it for study. Ten years ago when I worked on the design of the Joseph Regenstein Library, provisions were made for reading, storage and service areas for the microform department. During this period the film and fiche have doubled in quantity until today the collection includes 60,000 rolls of microfilm and 350,000 cards. The number of reader stations and the overall square footage requirements have remained about the same.

How is this material stored and at what rate will it expand? Although the size and age of the collection and the type of library will determine the use of microfilm, the basic storage and types of equipment remain roughly the same.

The Joseph Regenstein Library has five stories with two lower levels, 575,000 square feet, 2,700 readers and approximately 2,000,000 books. The first floor contains the Reserve

Books Collection, the Reference Department, the Public Catalog, the Technical Services and the Graduate Library School. The Main Catalog includes the Microform Catalog. The second floor contains the Humanities - History and Social Sciences bookstacks and reading areas, faculty studies and the microform storage and reading areas. See the illustration on Page 7. The microform area readers are at average reader carrel stations. The stations have electrical service and are equipped with readers for either film or fiche. See the illustration on Page 8. The carrels measure 4'-6" x 4'-6" and have an aisle of 4'-0" between them. This gives a requirement per reader station of 31.5 square feet. As the equipment changes rapidly, enough room should be programmed to allow for new developments.

Since these carrels were designed, many others have come on the market. One problem which developed several years ago was that with a fixed screen image, readers experienced stiff necks from having to view the screen from only one position. Subsequent equipment has been improved to allow for adjustment to a variety of angles, and carrels have been designed with a reader platform which allows for similar viewing angles.

The reader space was designed for uniform lighting which could be dimmed. Newer equipment obviates this requirement to a great extent, but it is still a good idea to be able to control the lighting by switching.

Earlier libraries relegated the microform area to the basement or more remote parts of the building. The size of the library and the size of the microform collection determine its location. With the advances in equipment and lighting, it can be on the ground floor near the Main Catalog. There is even the possibility of having the tapes in an open

arrangement where the user could have access to them with limited supervision. In a small library, there would then be an easy transition from catalog to storage to reader.

Microfilm, like books, needs suitable storage and care in handling. Properly-processed, stored silver emulsion film will remain in good condition as long as the best papers. The life of the film can be adversely affected by careless handling, exposure to contaminated atmospheres, high relative humidity and temperature. Normal temperatures and relative humidities for human comfort will probably prove satisfactory for the use of microfilms without damage.

Microform use copies are stored in a variety of ways. The most satisfactory method employs specially constructed metal cabinets or shelves. These are designed to accommodate reels of microfilm or trays of microfiche.

A method frequently employed for shelving microfilm reels in libraries is to place them in their labeled container boxes on regular stack shelves. At Regenstein, a unit of 14 shelves high with each shelf containing 70 reels of film stores 980 reels or 1,960 reels in units back-to-back. The units are 3' long and the double unit back-to-back is 36" deep. Using a 36" aisle, this allows 1,960 reels to be stored in 18 square feet of floor space. See the illustration on Page 9.

With compact storage, many more can be stored. Using the same unit as above, but movable, 43,000 reels can be stored in 300 square feet of floor space.

Fiche and film are also stored in metal cabinets with drawers. A cabinet ten drawers high; measuring 23-1/2" long, 28" wide and 51" high; will store 1,350 16 mm roll film

or 900 35 mm roll film. A cabinet with identical dimensions but eight drawers will store 41,600 4" x 6" or 3" x 5" fiche cards.

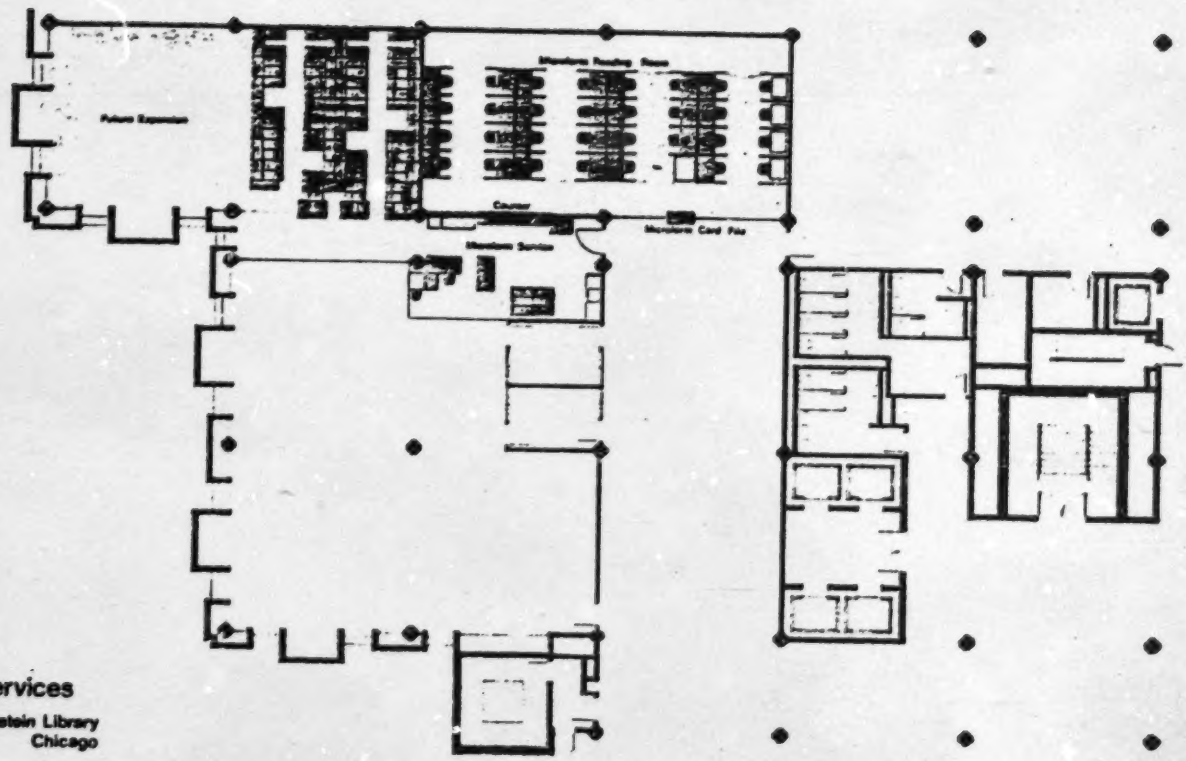
Although it is possible in a small collection to allow the user direct access to film, it is impractical in the case of fiche. A misfiled card is almost hopelessly lost and it is faster and more economical to obtain a copy than to search for it.

As the collections of microform become larger and more complex, it begins to become economical to automate. Although microfilm can be retrieved manually, more sophisticated automatic and semi-automatic equipment is available. This can be either self-contained or remote-controlled equipment.

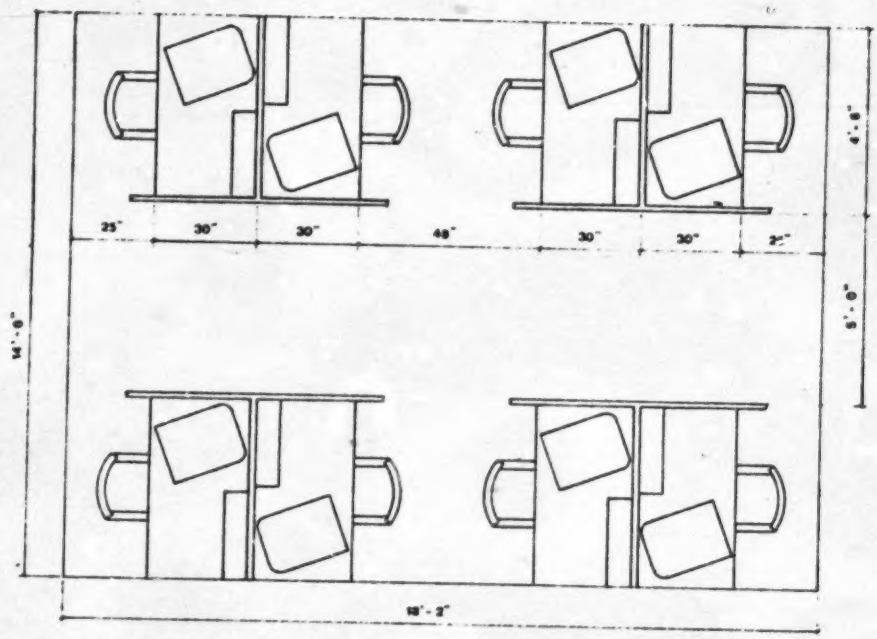
In the self-contained equipment an entire microfiche collection can be accommodated within the equipment and a search can be made for the desired frame within four seconds. Film may be searched in a similar manner. Auxiliary equipment such as a computer to aid in the search can be connected to the unit. Retrieval implementation may begin by typing a request on a keyboard. A visual display of entered data and response from the system is shown on a screen. Millions of pages of information in microform can be searched in a matter of seconds. When desired, the information can be printed in hard copy. The cost of this storage and retrieval is relatively high. Remote-controlled equipment provides for this search at a separate location. This may be accomplished by the remote television display of information stored in a central file.

The future of microform is limited only by the copyright laws, the cost and the user. The rapidly rising costs of buildings, maintenance salaries and books have changed the emphasis from one of size to one of quality. One way to expand is through miniaturization. As more

material is put on film, there could be a radical effect on the cost and size of libraries. They could become smaller, more intimate and even disappear as reader spaces could be dispersed throughout a university or a city. However, the book is still a very compact storage unit. Lying in a hammock while reading a book is a very pleasant experience. Searching through several years of newspapers for necessary information is more efficient at a microfilm reader than in a hammock. There are requirements for both traditional reading materials and the newer forms. We should plan for both.



Microform Services
The Joseph Regenstein Library
University of Chicago

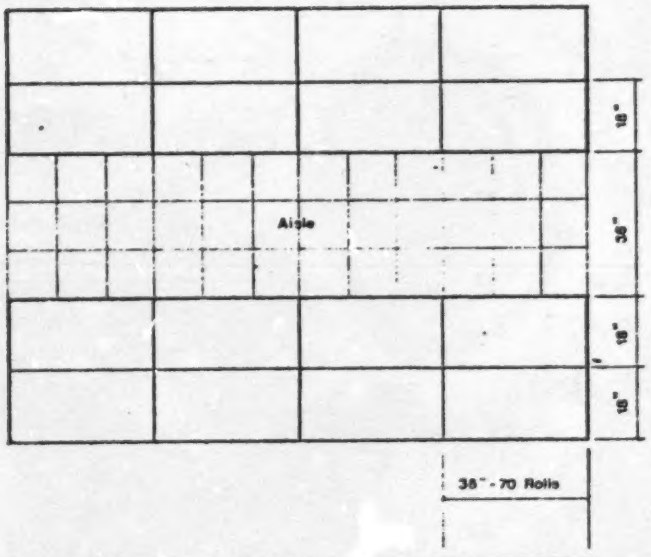


plan

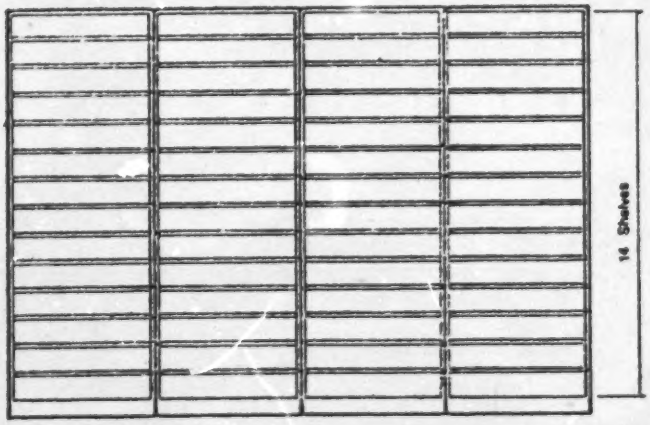
Microform Reader Stations

4 Stations per 126 sq. ft.
31.5 sq. ft. per Station

plan



elevation



Fixed Unit Microfilm Storage

70 Rolls per Shelf
14 Shelves per Unit
980 Rolls per Unit

1960 Rolls per 18 sq. ft.